Review

B.P.M. Hyland, T. Whiffin, D.C. Christophel, B. Gray, R.W. Elick and A.J. Ford (1999). ***Australian Tropical Rain Forest Trees and Shrubs***. *An interactive plant identification system for trees and shrubs.* CD-ROM and 95-page manual. CSIRO Publishing. Price $130. ISBN 0 643 06047 2.

This publication is a further, major advance upon the landmark computer-based identification system published by Bernie Hyland and Trevor Whiffin in 1993. That publication was reviewed for this journal by Carolyn Hohnen (Hohnen 1994), who traced the development of this system from the original card key of 1971, which covered the more common rainforest trees of the Wet Tropics between Townsville and Cooktown. The 1993 publication included 1056 tree species across all of tropical Australia, north of 19°S.

One of the major drawbacks to its use was the exclusion of small trees and shrubs less than 6 m high and/or 10 cm diameter at breast height. Collection of suitable material, ie. from canopy and sub-canopy trees can be a very difficult and slow procedure; moreover, at a particular location many canopy species may be represented only by juveniles. This has limited its value for field studies. These restrictions have been removed by the present publication which has included rainforest shrubs and sub-shrubs, making a total of 1733 species.

The other major improvement to the system is the inclusion of distribution maps and images for each species. The maps display point locations for herbarium specimens held at the Australian National Herbarium, Atherton (QRS) and the Northern Territory Herbarium, Darwin (DNA) and are more informative than a generalised range. Apart from incorporating the x-ray leaf images from Volume 2 of the 1993 publication, there are also photographs of flowers of most species and where available, the wonderful fruit and flower paintings by William Cooper. Importantly, these images are also linked with vouchered herbarium specimens.

The system requires a computer with a 486 or Pentium processor and Microsoft Windows 3.1 or later. It also needs at least 8 megabytes of RAM (16 mb for Windows 95) and approx. 10 mb of hard disk space (images are left on the CD-ROM) or 1 mb if the program is run entirely from the CD-ROM. I found it ran quite satisfactorily, with minimal delays, on a Pentium 90 machine.

The key is straightforward to use, with individual screens for each of the major groups of characters, viz. habit, bark, leaf, flower, fruit, seedling, family and geographic range. Separate screens list the (decreasing) subsets of possibilities and the set of characters scored for the specimen. This latter feature has been added since the 1993 version, and is a great help in further checking of identifications.

Images and maps are accessed via the list of possibilities. There is also access to a detailed description of each species and a list of the key characters for each species, which is particularly valuable for checking against the characters scored for the specimen being identified.

The key comprises 17 bark characters (48 states or features), 27 leaf characters (106 features), 40 flower characters (166 features), 16 fruit characters (64 features) and 34 seedling characters (86 features). Specimens may also be scored for family and geographic location, ie. north-western Western Australia, Northern Territory, Cape York (ie. 16° northward) and north-eastern Queensland (south to 19°S). The User Guide provides excellent illustrations of character states, eg. leaf apices and bases, and definitions and explanations are provided in help menus for each character set and as context-sensitive help for each feature.

As a field botanist, I depend mainly on leaf (and branchlet) characters and stem surface features to identify rainforest trees. I would like to see a greater range of leaf characters included, such as presence and types of indumentum, stipules, bracts and scales, glands on petioles and/or laminas, presence and colour of latex, etc..

I have had relatively few difficulties in using the key. Oil dots (their presence or otherwise) often create problems and I was unable to key out *Eupomatia laurina.* This species is recorded in the Additional Features menu as having "very small oil dots just visible with a lens", but is coded only for "oil dots absent".

This product is not really a practical field tool. Although it can be used in a laptop computer, this value is restricted by extremely limited battery lives (except where generators are available) and weather conditions. There remains a place for old-fashioned hard-copy field guides compiled at the regional or local level.

Having said that, I unreservedly recommend this guide to professional and amateur biologists alike. Apart from its identification role, the guide is a marvellous information system for anyone with a serious interest in the rainforest flora of northern Australia It will be further enhanced in the next few years by incorporation of rainforest vines and climbers.

Reference

HOHNEN, C. (1994). Book Review: *Australian Tropical Rainforest Trees - An interactive identification system,* including *Leaf Atlas of Australian Rain Forest Trees. Austrobaileya* 4(2): 291–292.

Bill McDonald

Queensland Herbarium, EPA, Brisbane Botanic Gardens Mt Coot-tha, Mt Coot-tha Road, Toowong, Queensland 4066, Australia.